

An adolescent boy with blistered feet

QUESTION: During the summer, a 16-year-old boy sees his physician because of itching, burning feet. He has not changed his diet, he has not put any new medications or cosmetics on his feet, and he has not started wearing a new pair of shoes. He feels well. There is no history of travel outside the city or country or of nature hikes. He says the problem began several weeks ago and has progressively worsened. The boy had a similar dermatitis last year. The current rash began as itchy, slightly raised, red firm papules but progressed into bullae. A few of the original lesions persist along with the bullae (figure 1).

What is the diagnosis?

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Figure 1 Bullous lesions on the sole of a teenaged boy

ANSWER: The boy has pompholyx, also called dyshidrotic eczema. Despite the name *dyshidrotic*, the condition is not caused by a disorder of sweating. Although the cause is unknown, half of all patients have a history of atopy.¹ The pruritic red or pink round, flat lesions, which may progress to bullae in severe cases, are often mistaken for a staphylococcal skin infection. The tiny vesicles can coalesce to form bullae. In severe cases, the bullae will eventually burst and weep, and the skin becomes dried out, cracked, and painful.²

The feet and/or both hands are involved symmetrically. The hands can exhibit similar lesions, but often the problem is limited to small firm 1- to 2-mm papules on the skin between the fingers (figure 2). It is far more common on the hands than the feet, but it is rare for both sites to be involved.

DIFFERENTIAL DIAGNOSIS

Pompholyx begins with mildly itchy feet that are very sweaty. Hence, the differential diagnosis for early pompholyx is simply sweaty feet. Many adolescents' feet, especially boys' feet, are sweaty and smelly. Shoe rotation and cotton socks are usually sufficient to solve this problem. Teens will be grateful for professional help to relieve this embarrassing situation. Pitted keratolysis can complicate sweaty feet.³ This condition presents with small, discrete, craterlike pits on the sole. Sweaty, wet feet allow the growth of *Micrococcus sedentarius* bacteria, the cause of pitted keratolysis.⁴ Topical erythromycin and foot drying with Drysol (20% aluminum chloride hexahydrate alcoholic solution) can be curative.⁵

Hyperhidrosis involving both feet and hands is an extreme variant of sweating and causes even greater concern for adolescents. A number of products containing aluminum hydroxide or chloride are available to dry the skin. For severe cases, a dermatologic consultation can help with possible use of oral glycopyrrolate, botulinum toxin injections, or iontophoresis.

Tinea pedis is pruritic but generally begins as cracking between the toes and can spread to involve the entire sole and sides of the feet. Of the 3 common patterns of tinea pedis, the vesicular type resembles pompholyx. If there is any difficulty in distinguishing between these 2 vesicular conditions, a potassium hydroxide scraping of a suspicious area should be done. An id reaction on the hands—dermatitis in response to a skin lesion elsewhere in the body—can resemble pompholyx, but this reaction is associated with tinea of the feet. This is not dyshidrotic eczema. In a patient with vesicles on the hands, the feet should always be inspected for possible tinea pedis because the hand rash will clear up only by treating the tinea.



Figure 2 Small papules on the skin between the fingers

Contact dermatitis to shoe leather usually involves the top of the foot, and allergy to rubber tennis shoes involves the soles. Both of these lead to localized redness, pruritus, and occasionally vesicles.

Rhus dermatitis due to exposure to poison oak or poison ivy causes a bullous dermatitis, but this is rarely on the soles of the feet because people usually wear shoes on nature trails. If the patient has been barefoot in areas with poison oak or ivy, this diagnosis should be considered. Other skin areas—ankles, legs, arms, face, and even genitals—are usually involved.

TREATMENT OF POMPHOLYX

Treatment involves primarily topical steroids of moderate to high potency (class III or IV) to penetrate the thick epidermis of the feet and hands. Drying the feet by rotating shoes, allowing a day between uses, and wearing cotton socks help reduce wetness and odor. Saline or Burow's solution soaks may be useful in the early vesicular stage. Antibiotic therapy is needed only if there is a secondary bacterial infection.

References

- 1 Lodi A, Betti R, Chiarelli G, Urbani CE, Crosti C. Epidemiological, clinical and allergological observations on pompholyx. *Contact Dermatitis* 1992;26:17-21.
- 2 DuVivier A, McKee PH. *Atlas of Clinical Dermatology*. 2nd ed. London, UK: Mosby-Wolfe Times Mirror International; 1993:3.14-3.15.
- 3 Takama H, Tamada Y, Yano K, Nitta Y, Ikeya T. Pitted keratolysis: clinical manifestations in 53 cases. *Br J Dermatol* 1997;137:282-285.
- 4 Nordstrom KM, McGinley KJ, Cappiello L, Zechman JM, Leyden JJ. Pitted keratolysis: the role of *Micrococcus sedentarius*. *Arch Dermatol* 1987;123:1320-1325.
- 5 Adams BB. Sports dermatology. *Adolesc Med* 2001;12:306-307.